

MODIFIED CLAIMS DURING IPER

1. Use of a catalyst for heterogeneous catalysis comprising a β -SiC support and at least one active phase, the said catalyst being obtainable by using a process
5 comprising at least the following steps:
 - (a) impregnation of the said support having a specific surface area, determined by the BET nitrogen adsorption method at the temperature of liquid nitrogen according to standard NF X 11-621, equal to at least
2 m²/g and comprising macropores with a size between 0.05 and 10 μ m and
10 optionally also mesopores with a size between 4 and 40 nm, with at least one active phase precursor, the said impregnation being done by an impregnation process comprising at least a first impregnation step during which the said support is impregnated at least once by a polar agent A, and a second impregnation step during which the said support is impregnated at least once by an agent B less
15 polar than agent A, knowing that at least agent B comprises at least one active phase precursor,
 - (b) thermal breakdown of the said precursor,
the said use being as a catalyst for chemical reactions selected among oxidation of methane or other hydrocarbons, oxidation of carbon monoxide, or as
20 a catalyst for depollution of exhaust gases of vehicles with internal combustion engines.
2. Use according to claim 1, characterised in that the said active phase precursor is a metallic compound.
3. Use according to claim 2, characterised in that the metal contained in the
25 said metallic compound of agent A and / or agent B is selected among the group composed of the Fe, Ni, Co, Cu, Pt, Pd, Rh, Ru, Ir elements.
4. Use according to claim 2 or 3, characterised in that the said metallic compound contained in the said agents is either a salt dissolved in a solvent, or an organo-metallic compound.

5. Use according to claim 4, characterised in that the said organo-metallic compound is either dissolved in a solvent, or used in its pure state.
6. Use according to any one of claims 1 to 5, characterised in that the said support is in the form of balls, fibres, tubes, filaments, felt, extruded materials,
5 foams, monoliths or pellets.
7. Use according to any one of claims 1 to 6, characterised in that the said support has a BET specific surface area more than $2 \text{ m}^2/\text{g}$, more than $10 \text{ m}^2/\text{g}$, and preferably more than $20 \text{ m}^2/\text{g}$.
8. Use according to any one of claims 1 to 7, characterised in that the said
10 support has a BET specific surface area between 2 and $100 \text{ m}^2/\text{g}$.
9. Use according to claim 8, characterised in that the said macropores have a size between 0.05 and $1 \text{ }\mu\text{m}$.
10. Use according to one of claims 1 to 9, characterised in that the maximum size distribution of the said macropores is between 0.06 and $0.4 \text{ }\mu\text{m}$, and
15 preferably between 0.06 and $0.2 \text{ }\mu\text{m}$.
11. Use according to any one of claims 1 to 10, characterised in that the impregnation method (a) comprises also at least one drying step after the first and / or the second impregnation step.
12. Use according to any one of claims 1 to 11, characterised in that the
20 impregnation method (a) comprises also at least a preliminary treatment of the support that introduces hydrophobic and / or hydrophilic functions on the surface of the said support.
13. Use according to any one of claims 1 to 12, characterised in that the said precursor at least partially forms a metallic oxide during its thermal breakdown.
- 25 14. Use according to claim 13, characterised in that the thermal breakdown of the said precursor is followed by a treatment under a reactive gas.

15. Use according to claim 13 or 14, characterised in that the said treatment under a reactive gas is a reduction treatment.
16. Use according to claim 15, characterised in that the said reduction treatment has been carried out in an atmosphere containing hydrogen H_2 .
- 5 17. Use according to one of claims 1 to 16, characterised in that the support, which has been dried after the last impregnation step, is calcined under air at a temperature between $200^{\circ}C$ and $500^{\circ}C$, and preferably between $300^{\circ}C$ and $400^{\circ}C$.
- 10 18. Method of impregnation of a β -SiC support with a specific surface area, determined by the BET nitrogen adsorption method at the temperature of liquid nitrogen according to standard NF X 11-621, equal to at least $2\text{ m}^2/\text{g}$ and comprising macropores with a size between 0.05 and $10\text{ }\mu\text{m}$, and optionally also mesopores with a size between 4 and 40 nm , the said process comprising at least the following steps:
- 15 (a) a first impregnation step during which the said support is impregnated at least once by a polar agent A,
- (b) a second impregnation step during which the said support is impregnated at least once by an agent B less polar than agent A,
- and in which process at least one agent B among the said agents A and B
- 20 comprises at least one active phase precursor.
19. Method according to claim 18, characterised in that the said support has a specific surface area equal to at least $10\text{ m}^2/\text{g}$.
20. Method according to claim 19, characterised in that the average size of the said macropores of the said support is between 0.05 and $1\text{ }\mu\text{m}$.
- 25 21. Method according to claims 18 to 20, characterised in that the maximum value in the distribution of the said macropores by size is between 0.06 and $0.4\text{ }\mu\text{m}$, and preferably between 0.06 and $0.2\text{ }\mu\text{m}$.

22. Product that can be obtained using the method according one of claims 18 to 21.